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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR  | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|-----------------------|---------------------|------------------|
| 10/632,038  | 07/30/2003  | Viatcheslav V. Osipov | 200300686-1         | 9654             |
| 7590  | 06/28/2004  |                       | EXAMINER            |                  |
| HEWLETT-PACKARD COMPANY<br>Intellectual Property Administration<br>P.O. Box 272400<br>Fort Collins, CO 80527-2400 |             |                       | DICKEY, THOMAS L    |                  |
|   |             |                       | ART UNIT            | PAPER NUMBER     |
|   |             |                       | 2826                |                  |

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                             |                  |
|------------------------------|-----------------------------|------------------|
| <b>Office Action Summary</b> | Applicant No.               | Applicant(s)     |
|                              | 10/632,038                  | OSIPOV ET AL.    |
|                              | Examiner<br>Thomas L Dickey | Art Unit<br>2826 |

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

#### P r i d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 30 July 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disp sition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-22 is/are allowed.
- 6) Claim(s) 23 and 25 is/are rejected.
- 7) Claim(s) 24 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 30 July 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Pri rity under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____.   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/30/03</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____.                                   |

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## **DETAILED ACTION**

### ***Oath/Declaration***

1. The oath/declaration filed on 07/30/2003 is acceptable.

### ***Drawings***

2. The formal drawings filed on 07/30/2003 are acceptable.

### ***Priority***

3. Applicants have made no claim for priority.

### ***Information Disclosure Statement***

4. The Information Disclosure Statement filed on 07/30/2003 has been considered.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless ~

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by KIRCZENOW (6,355,953).

Kirczenow discloses a method for amplifying a signal current, comprising applying a first voltage difference between a first magnetic region 54 and a second magnetic region 56 that respectively form a first interface 58 and a second interface 60 with a semiconductor region 52 that is between the first 54 and second 56 magnetic regions; driving the signal current through a wire 61 that is adjacent to the semiconductor region 52 to create a magnetic field that rotates spins of electrons injected through the semiconductor, wherein the semiconductor region 52 is such that an electron spin relaxation time of the semiconductor region 52 is longer than a transit time of the electrons traversing the semiconductor region 52. Note figures 5 and 6 and column 7 lines 42-64 and column 9 lines 7-45 of Kirczenow.

***Allowable Subject Matter***

6. Claims 1-22 are allowed over the references of record because none of these references disclosed or can be combined to yield the claimed invention such as an amplifier comprising a first magnetic region having a first magnetization; a control region forming a first interface with the first magnetic region; a second magnetic region forming a second interface with the control region, the second magnetic region having a second magnetization that is substantially perpendicular to the first magnetization; and a wire positioned relative to the control region so that a current through the wire creates in the

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control region a magnetic field that rotates spins of the electrons injected through the control region between the first magnetic region and the second magnetic region, as recited in claim 1.

Kirczenow discloses an amplifier comprising a first magnetic region 54 having a first magnetization; a control region 52 forming a first interface 58 with the first magnetic region 54; a second magnetic region 56 forming a second interface 60 with the control region 52, and a wire 61 positioned relative to the control region 52 so that a magnetic field that rotates spins of the electrons injected through the control region 52 between the first magnetic region 54 and the second magnetic region 56. In addition, Kirczenow discloses driving a signal current through the wire 61 positioned relative to the control region 52, to raise and lower its potential, and that the second magnetic region 56 has a second magnetization that is parallel or anti-parallel to the first magnetization. Because of this Kirczenow does not suggest or disclose that a current flows through the wire 61 positioned relative to the control region 52 or that the second magnetic region 56 having a second magnetization that is substantially perpendicular to the first magnetization.

7. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**TLD  
06/04**

*Minhloan Tran*  
**Minhloan Tran**  
**Primary Examiner**  
**Art Unit 2826**